

REMARKS:

In accordance with the foregoing, claims 1, 5-8 and 12-17 have been amended. Claim 2 has been cancelled without prejudice, and new claims 18-24 have been added. No new matter has been added. Thus, claims 1 and 3-24 are pending and under consideration. The outstanding rejections and objections are traversed below.

OBJECTION TO THE DRAWINGS:

At item 2 of the outstanding Office Action, the Examiner indicates that “a second examination signal generator” recited in claim 5 is not shown in the drawings of the present application.

Claim 5 is amended herein to recite, “an examination signal generator”. Further, Applicants respectfully submit that discussion of the examination signal generator is found at least in FIGS. 9-11 of the present application.

Thus, withdrawal of the objection is requested.

ALLOWABLE SUBJECT MATTER:

At item 5 of the outstanding Office Action, the Examiner has indicated that claims 6-11 would be allowable if rewritten in independent form. Claims 6-11 are amended herein to be in independent form.

Thus, withdrawal of the objection is requested.

REJECTION UNDER 35 U.S.C. § 103(a):

Claims 1-5 and 12-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Jennings and Koga. Claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Jennings and Koga in view of U.S. Patent No. 5,500,756 (Tsushima).

Jennings discusses transmitting and receiving optical test signals of a certain wavelength through optical links. In Jennings, a laser test source generates optical signals having a wavelength of λ_1 to be transmitted with other optical signals of wavelength λ_2 (see, paragraph 16). Then, the other optical signals of wavelength λ_2 are passed through a receiver of a customer equipment, while the signals of wavelength λ_1 are looped back via a loopback link to be transmitted to a central office with optical signals of wavelength λ_3 (see, paragraph 16 and

FIG. 2).

The Examiner acknowledges that Jennings does not disclose a specific wavelength for an up data signal, thus relies on Koga as teaching the same. Koga discusses multiplexing signal lights having wavelengths of λ_1 and λ_2 and maintaining the signal lights coupled until receipt of the same via receiving sections (see, FIG. 2 and corresponding text).

The present invention solves a problem that is not solved by Koga and/or Jennings. The present invention couples “data signal with a first wavelength” and “an examination signal of a second wavelength” (see, independent claims 1 and 12-17). The first coupled signal ($\lambda_1 + \lambda_2$) transmitted to a lower apparatus is divided such that the down data signal with the first wavelength (λ_1) is transmitted to a terminal apparatus and the examination signal (λ_2) is returned (see also, page 12, line 33 through page 13, line 13 of the present application). This, for example, enables the present invention to precisely indicate a location of a fault (i.e. whether the fault is in an up optical fiber transmitting line, a down optical fiber transmitting line, a terminal apparatus, etc.).

Moreover, independent claim 1 as amended recites, “said first optical coupling unit, said first optical dividing unit, said second optical coupling unit and said second optical dividing unit are formed of passive elements that are operable without a power supply”. Independent claims 12 and 13-17 as amended also recite “the coupling and demultiplexing operations are performed using a unit formed of passive elements that are operable without a power supply” (“dividing” and “separating” in claims 13 and 14). This, for example, enables detection of a fault occurring in a transmission line without the need to go and check a power state of a lower apparatus (see also, page 5, lines 24-26 of the specification of the present invention).

In contrast, Jennings discusses that the WDMs (elements 124, 126, 128 and 130 in FIG. 2 of Jennings) process optical signals (i.e. amplify), which requires a power supply (see, paragraph 15). This is unlike the present invention that implements the coupling and demultiplexing operations using a unit(s) formed of “passive elements that are operable without a power supply”.

The combination of Koga and Jennings does not teach or suggest, a transmission line monitoring apparatus and method including “coupling an up data signal with a first wavelength and said returned examination signal” and “demultiplexing the second coupled signal... into said up data signal with the first wavelength and said examination signal with the second wavelength”, where “the coupling and the demultiplexing operations are performed using a unit

formed of passive elements that are operable without a power supply", as recited in independent claims 1 and 12-17 ("dividing" in claim 13 and "separating" in claim 14).

Therefore, withdrawal of the rejection is respectfully requested.

NEW CLAIMS:

New claim 18 has been added recite, "separately returning the examination signal of the second wavelength and at least a portion of the down data signal of the first wavelength" and "inserting the returned portion of the down data signal into an up data signal with a first wavelength, and coupling the returned examination signal of the second wavelength with the up data signal to transmit a second coupled signal towards a host apparatus".

New claims 19-24 have been added to recite that "said up data signal with the first wavelength includes at least a portion of said down data signal inserted therein".

Therefore, it is respectfully submitted that new claims 18-24 is patentably distinguishable over the cited references.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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